

REMARKS

In the Office Action dated July 26, 2007, claims 1-22 and 24 were examined with the result that all claims were rejected. The Office Action was a non-final rejection. In response, applicant presents the following remarks. In view of these remarks, reconsideration of this application is requested.

In the Office Action, the Examiner rejected claims 1-22 and 24 under 35 U.S.C. §103(a) as being unpatentable over Chang et al U.S. Published Patent Application No. 2003/0032352A1 (hereinafter Chang et al). The Examiner states that the step of recycling acetone added to claim 1 in the previous Amendment would be obvious because although Chang et al does not disclose a solvent recycling step, "a polymer chemist of ordinary skill in the art would be motivated to modify Chang by recycling the previously removed acetone" because "the recycling step is merely an optimization of the process as a whole." In addition, the Examiner alleges that including a recycling step "would be obvious because one would have a reasonable expectation of success that removed acetone as taught by Chang would be similarly useful and applicable as a recycled solvent." In response, applicant believes that such a conclusion might be true if one were considering only the Chang et al process. However, a conclusion that the presently claimed process would be obvious is not sustainable in view of what is taught by Chang et al.

While the Examiner has based his rejection on the addition of a recycling step to claim 1, the Examiner has overlooked the fact that claim 1 was also amended to require adding water to the reaction mixture after polymerization (step E), and claim 1 was also amended to require removing substantially all of the acetone from the reaction mixture "after adding water" (step F). The Examiner has ignored these two modifications to claim 1, and concentrated only on the recycling step in the rejection set forth in the present Office Action. The applicant would like to emphasize to the Examiner that it is a combination of all three of these features which distinguishes claim 1 over Chang et al, and renders claim 1 not obvious in view of Chang et al.

As noted above, applicant believes the combination of these three limitations added to claim 1 distinguish over Chang et al. Claim 1 now requires adding water to the reaction mixture after polymerization, removing the acetone from the reaction mixture after adding

the water, and finally using the acetone that has been removed to prepare the solvent solution of step A. These limitations distinguish claim 1 from Chang et al because Chang et al teaches neither (1) adding water after polymerization and before removing the solvent, nor (2) recycling the acetone to prepare the mixed solvent solution for polymerizing the polymer.

In the Chang et al patent, the description states that a solvent or a mixture of solvents is used to prepare the polymer. Then, Chang et al removes the solvent and thereafter dissolves the remaining polymer in water. If the monomer conversion to polymer is high, it is reasonable for one skilled in the art to assume that the composition of the removed solvent or solvent mixture would be similar to the composition of the starting solvent or solvent mixture. Since one of ordinary skill would assume the final solvent composition of Chang et al would be the same, or at least very similar to the initial solvent composition, a chemist of ordinary skill in the art could consider reusing the solvent or solvent mixture, and have a high expectation of success.

In the present patent application, however, one of the key steps involves the addition of water to the polymerization mixture before the solvent is removed. Chang et al does not teach or suggest the addition of water prior to distillation. In Example 1 of the present patent application, the acetone/water ratio is 75/25 during the preparation of the polymer. When the water is added before the distillation step, the acetone/water ratio changes to become about 27/73. If additional water is not added before distillation, the viscosity of the polymer/solvent blend is too high to be effectively distilled. Other complications and/or problems could arise and are explained further on pages 7 and 8 of the previous Amendment dated May 15, 2007.

As a result of the addition of water, the ratio of acetone to water has changed from about 75% acetone to about 27% acetone. With this low ratio of acetone to water, the expectation of successfully recovering the acetone/water mixture in a ratio close to the original 75/25, without resorting to additional purification steps, would be unlikely to a chemist of ordinary skill in the art. Surprisingly, however, the applicant has found that the distillation gave a distillate composed of 73% acetone, 1.5% methylacrylate, and 25.5% water without addition purification steps. Applicant refers the Examiner to Example 1, and particularly paragraph 0026 on page 11 of the application as filed. Thus, since applicant has

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added water resulting in a low ratio of acetone to water, one would not have a reasonable expectation of success that the removed acetone would be similarly useful and applicable as a recycled solvent, without additional purification steps and without the addition of significant amounts of makeup acetone.

In summary, the present invention includes the key step of adding water before distillation, where the composition of the starting distillate is substantially different from the composition of the polymerization solvent. The Chang et al reference does not provide motivation to one of ordinary skill in the art to recycle a solvent where the composition of the starting distillate and the polymerization solvent are not the same. Likewise, there is not a reasonable expectation of success that the distillate reclaimed by the presently-claimed process would be useful for recycling.

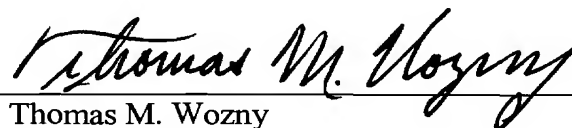
Thus, not only is there no suggestion or motivation in Chang et al to modify the Chang et al reference to add water and recycle the solvent, but there is no reasonable expectation of success since the starting distillate is substantially different from the polymerization solvent. Finally, the prior art Chang et al reference clearly does not teach or suggest such steps, and as a result applicant believes claim 1 is not obvious in view of Chang et al.

An effort has been made to place this application in a condition for allowance and such action is earnestly requested.

Respectfully submitted,

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